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EXAMINER	
LEUNG, JENNIFER A	

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1797	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/731,874	LAH, RUBEN F.	
	Examiner	Art Unit	
	JENNIFER A. LEUNG	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 September 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-47 and 49-58* is/are pending in the application.

4a) Of the above claim(s) *11-46 and 53-58* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-10,47 and 49-52* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/16/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed on September 16, 2008 has been carefully considered. Claims 11-46 and 53-58 are withdrawn from consideration. Claims 2 and 48 are cancelled. Claims 1, 3-10, 47 and 49-52 are under consideration.

Claim Objections

2. Claims 3-6 are objected to because the claims each depend from cancelled claim 2. Similarly, claims 49-51 are objected to because the claims each depend from cancelled claim 48. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 8 and 52 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 8, it is unclear as to the relationship between the "portions of said main body…" (lines 2-3) and the "seat support system" now set forth in claim 1 (lines 12-13).

Regarding claim 52, it is unclear as to the relationship between the "at least a portion of said main body…" (lines 2-3) and the "seat support system" now set forth in claim 47 (lines 6-7).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 3, 4, 7, 47, 49 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Payne et al. (US 2,403,608) in view of Maa (US 4,771,805).

Regarding claims 1 and 7, Payne et al. (see FIG. 1; column 2, line 25 to column 4, line 22) discloses an apparatus comprising: (a) a coke drum (i.e., coking chamber **1**) having at least one port therein, said coke drum receiving material therein from a manufacturing system and process (i.e., the coking chamber **1** receives an oil stream from tubular heating furnace **2**); and (b) a de-header valve (i.e., closure **15**, comprising a sliding valve or other suitable closure; see column 2, line 47 to column 3, line 1) coupled to said port of said coke drum **1** for regulating the throughput of coked material **7**. The apparatus of Payne et al. is the same as the instantly claimed apparatus, except Payne et al. is silent as to the valve **15** having the claimed configuration.

Maa (FIGs. 1-3) teaches a sliding blind gate-type valve removably couple-able to a pipeline or the like (see column 2, lines 39-44), said valve comprising:

(1) a main body **10** having an orifice (i.e., passage **12**) dimensioned to align with said pipeline or the like when the valve is coupled thereto (i.e., via flanges **14**);

(2) a valve closure (i.e., gate **26**) operably supported by said main body **10**, said valve closure **26** capable of being actuated to oscillate between an open position (see FIG. 2) and a closed position (see FIG. 1);

(3) means for supporting said valve closure, said means comprising a seat support system (i.e., including seat carrier **20**, seal rings **58**, annular seat members **78**, annular members **80**; see FIGs. 6, 7; column 3, line 38 to column 4, line 33; column 6, lines 8-38);

(c) a continuously maintained metal-to-metal contact seal between said valve closure **26** and said means for supporting said valve closure (see Abstract; column 6, lines 8-42); and

(d) means for actuating said valve closure **26** (e.g., a stem **38** and hand wheel **42**; see column 2, line 67 to column 3, line 13).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the valve taught by Maa for the valve **15** in the apparatus of Payne et al., because the valve taught by Maa would have predictably provided a satisfactory means for isolating and regulating the flow of coked material from the coking chamber, given its suitability of use in high pressure and particular/particular fluid environments (see column 1, lines 10-20).

Furthermore, the substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958), and when the prior art is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result, *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (2007).

Regarding claims 3 and 4, Maa teaches that the seat support system comprises dual, independent seats (i.e., seat members **78**) positioned opposite one another on either side of closure **26**, thus applying opposing forces upon said valve closure **26**, wherein said seats are dynamic, and wherein the seat support system comprises at least one live loaded seat and seat assembly (see FIG. 7; column 3, line 39 to column 4, line 33; column 6, lines 8-42).

Regarding claim 47, Payne et al. (see FIG. 1; column 2, line 25 to column 3, line 8) discloses a sliding blind gate-type deheader valve (i.e., a closure **15** for the coking drum **1**,

comprising a slide valve or other suitable closures). Payne et al., however, is silent as to the sliding blind gate-type deheader valve **15** having the instantly claimed configuration.

Maa (see FIGs. 1-3) teaches a conventional sliding blind gate-type valve comprising: a main body **10** removably couple-able to a pipeline or the like (i.e., via flanges **14**; see column 2, lines 39-43), wherein said main body **10** comprises an orifice (i.e., passage **12**) dimensioned to align with an opening of a pipeline or the like; a valve closure comprising a blind (i.e., gate **26**) capable oscillating in a linear manner to open (see FIG. 2) and close (see FIG. 1) said valve; means for supporting said blind, wherein said means comprises a seat support system (i.e., including seat carrier **20**, seal rings **58**, annular seat members **78**, annular members **80**; see FIGs. 6, 7; column 3, line 38 to column 4, line 33; column 6, lines 8-38); and a metal-to-metal contact seal created between said valve closure **26** and said means for supporting a valve closure (see Abstract; column 6, lines 8-42).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the valve taught by Maa for the valve **15** in the apparatus of Payne et al., because the valve taught by Maa would have predictably provided a satisfactory means for isolating and regulating the flow of coked material from the coking chamber, given its suitability of use in high pressure and particular/particular fluid environments (see column 1, lines 10-20). Furthermore, the substitution of known equivalent structures involves only ordinary skill in the art, and when the prior art is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.

Regarding claim 49, Maa teaches that the seat support system comprises dual, independent live loaded dynamic seats (i.e., seat members **78** with annular members **80**; see FIG.

7; column 6, lines 8-38) positioned on opposing sides of said blind **26**.

Regarding claim 51, Maa teaches that the seat support system comprises a single seat positioned about said blind **26** (i.e., a single seat carrier **20** surrounds the blind **26**), said single seat comprising a dynamic seat (see column 3, line 39 to column 4, line 33; FIGs. 3, 7).

5. Claims 1, 3, 5, 7, 9, 10, 47 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Payne et al. (US 2,403,608) in view of Usnick et al. (US 4,174,728).

Regarding claims 1 and 7, Payne et al. (see FIG. 1; column 2, line 25 to column 4, line 22) discloses an apparatus comprising: (a) a coke drum (i.e., coking chamber **1**) having at least one port therein, said coke drum receiving material therein from a manufacturing system and process (i.e., the coking chamber **1** receives an oil stream from tubular heating furnace **2**); and (b) a de-header valve (i.e., closure **15**, comprising a sliding valve or other suitable closure; see column 2, line 47 to column 3, line 1) coupled to said port of said coke drum **1** for regulating the throughput of coked material **7**. The apparatus of Payne et al. is the same as the instantly claimed apparatus, except Payne et al. is silent as to the valve **15** having the claimed configuration.

Usnick et al. (FIGs. 1-6; column 2, line 14 to 5, line 56) teaches a sliding blind gate-type valve removably couple-able to a process line (i.e., by means of tapped holes **25** on annular flanges **21**, **23**), said valve comprising:

(1) a main body **11** having an orifice (i.e., channel **53**);

(2) a valve closure (i.e., gate **13**) operably supported by said main body and capable of being actuated to oscillate between an open and closed position (see column 2, lines 31-42);

(3) means for supporting said valve closure, said means comprising a seat support system (i.e., including lower seat **29**, upper seat **31**);

(c) a continuously maintained metal to metal contact seal between the valve closure and the means for supporting said valve closure (see column 5, lines 2-34; column 4, lines 31-56); and

(d) means for actuating the valve closure (i.e., shaft **20**, with external pneumatic actuator **12**).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the valve taught by Usnick et al. for the valve **15** in the apparatus of Payne et al., because the valve taught by Usnick et al. would have predictably provided a satisfactory means for isolating and regulating the flow of coked material from the coking chamber, given its suitability of use in controlling the flow of highly abrasive particles (column 4, lines 31-40). Furthermore, the substitution of known equivalent structures involves only ordinary skill in the art, and when the prior art is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.

Regarding claim 3, Usnick et al. teaches that the seat support system comprises dual, independent seats (i.e., lower seat **29** and upper seat **31**) positioned opposite one another on either side of the valve closure **13**, thus applying opposing forces upon the valve closure, said seats being selected from a static and a dynamic seat (see column 2, line 58 to column 3, line 22; also, column 5, lines 35-56).

Regarding claim 5, Usnick et al. teaches that the seat support system comprises at least one static seat/seat assembly (e.g., the lower seat **29**, supported by welded ring **27**, see column 2, lines 58-60; or, the lower seat **29**, welded to the lower flange **23**, see column 5, lines 39-41).

Regarding claims 9 and 10, Usnick et al. teaches that the valve comprises an internal material isolation and containment system that allows the valve body to be pressurized, e.g., with pressurized gas; and a purge system for allowing excess pressurized purge gas to vent from the

valve body, e.g., via the small gate-to-seat clearance (see column 3, lines 48 to column 4, line 30; FIG. 1). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide an internal material isolation and containment system and a purge system in the modified apparatus of Payne et al., because the systems reduce the deposition and buildup of particulates on the sealing surfaces and oppose deposition of particulates in the valve cavities, as taught by Usnick et al. (see column 4, lines 44-50). Although Usnick et al. does not specifically teach that steam may be used as the purge gas, Usnick et al. does indicate that "any suitable purge gas" may be used. Thus, it would have further been obvious for one of ordinary skill in the art at the time the invention was made to select steam for the purge gas in the modified apparatus of Payne et al., on the basis of suitability for the intended use and absent a showing of unexpected results thereof, because the Examiner takes Official Notice that steam would have been well recognized in the art as a suitable purge gas for removing particulates from valves.

Regarding claim 47, Payne et al. (see FIG. 1; column 2, line 25 to column 3, line 8) discloses a sliding blind gate-type deheader valve (i.e., a closure **15** for the coking drum **1**, comprising a slide valve or other suitable closure). Payne et al., however, is silent as to the sliding blind gate-type deheader valve **15** having the instantly claimed configuration.

Usnick et al. (FIGs. 1-6; column 2, line 14 to 5, line 56) teaches a sliding blind gate-type valve comprising: a main body **11** removably couple-able to a process line (i.e., by means of tapped holes **25** on annular flanges **21**, **23**), wherein said main body **11** comprises an orifice (i.e., a flow channel **53**) dimensioned to align with an opening of a process line (see column 2, lines 47-57); a valve closure comprising a blind (i.e., valve gate **13**) capable oscillating in a linear manner to open and close said valve (see column 2, lines 31-42); means for supporting said blind

comprising a seat support system (i.e., an upper seat **31** and a lower seat **29**); and a metal-to-metal contact seal created between said valve closure **26** and said means for supporting a valve closure **29,31** (see column 5, lines 2-34; also, column 4, lines 31-56).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the valve taught by Usnick et al. for the valve **15** in the apparatus of Payne et al., because the valve taught by Usnick et al. would have predictably provided a satisfactory means for isolating and regulating the flow of coked material from the coking chamber, given its suitability of use in controlling the flow of highly abrasive particles (column 4, lines 31-40). Furthermore, the substitution of known equivalent structures involves only ordinary skill in the art, and when the prior art is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.

Regarding claim 50, Usnick teaches that the seat support system **29**, **31** comprise dual, independent static seats positioned on opposing sides of the blind **13** (see FIG. 4; column 2, line 58 to column 3, line 22; column 5, lines 12-34).

6. Claims 1, 3-7, 47 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Payne et al. (US 2,403,608) in view of Marx et al. (US 5,927,684).

Regarding claims 1 and 7, Payne et al. (see FIG. 1; column 2, line 25 to column 4, line 22) discloses an apparatus comprising: (a) a coke drum (i.e., coking chamber **1**) having at least one port therein, said coke drum receiving material therein from a manufacturing system and process (i.e., the coking chamber **1** receives an oil stream from tubular heating furnace **2**); and (b) a de-header valve (i.e., closure **15**, comprising a sliding valve or other suitable closure; see column 2, line 47 to column 3, line 1) coupled to said port of said coke drum **1** for regulating the

throughput of coked material **7**. The apparatus of Payne et al. is the same as the instantly claimed apparatus, except Payne et al. is silent as to the valve **15** having the claimed configuration.

Marx et al. teaches a sliding blind gate-type valve **10** removably couple-able to a pipe (i.e., via holes provided on its annular flanges, not labeled; see FIG. 8), said valve comprising:

(1) a main body (i.e., casing **11**) having an orifice (i.e., passage **17**);

(2) a valve closure (i.e., slide plate **16**) operably supported by said main body, said valve closure capable of being actuated to oscillate between an open and closed position;

(3) means for supporting said valve closure, said means comprising a seat support system (i.e., including seal rings **23**, **35** with armouring **25**, **36**);

(c) a continuously maintained metal to metal contact seal between said valve closure **16** and said means for supporting said valve closure (i.e., metallic sealing at surfaces **14**, **15**; see column 2, lines 52-60; column 3, lines 16-25 and 32-37); and

(d) means for actuating said valve closure (i.e., via rod **19** and drive system **18**; see FIG. 9).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the valve taught by Marx et al. for the valve **15** in the apparatus of Payne et al., because the valve taught by Marx et al. would have predictably provided a satisfactory means for isolating and regulating the flow of coked material from the coking chamber, given its suitability of use in controlling the flow of particulate containing streams (see column 1, lines 21-33). Furthermore, the substitution of known equivalent structures involves only ordinary skill in the art, and when the prior art is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.

Regarding claims 3-6, Marx et al. teaches that the seat support system comprises dual,

independent seats **23**/**25** and **35**/**36** positioned opposite one another on either side of the closure **16**, thus applying opposing forces upon said closure **16**, said seats being selected from a static and a dynamic seat. For instance, the seat support system may comprise at least one live loaded seat and seat assembly, at least one static seat and seat assembly, or a static seat positioned opposite a complimentary live loaded seat (e.g., a live-loaded seat **23**/**25**, opposite a static seat **35**/**36**; see FIG. 6; column 5, lines 58-61; column 6, lines 5-14).

Regarding claim 47, Payne et al. (see FIG. 1; column 2, line 25 to column 3, line 8) discloses a sliding blind gate-type deheader valve (i.e., a closure **15** for the coking drum **1**, comprising "slide valves or other suitable closures"). Payne et al., however, is silent as to the sliding blind gate-type deheader valve **15** having the instantly claimed configuration.

Marx et al. teaches a sliding blind gate-type valve **10** comprising: a main body **11** removably couple-able to a pipe (i.e., via holes provided on its annular flanges, not labeled; see FIG. 8), wherein said main body comprises an orifice (i.e., fluid passage **17**); a valve closure comprising a blind (i.e., slide plate **16**) capable oscillating in a linear manner to open and close said valve; means for supporting said blind, said means comprising a seat support system (i.e., including seal rings **23**, **35** with armouring **25**, **36**); and a metal to metal contact seal created between said valve closure and said means for supporting a valve closure (i.e., metallic sealing at surfaces **14**, **15**; see column 2, lines 52-60; column 3, lines 16-25 and 32-37).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the valve taught by Marx et al. for the valve **15** in the apparatus of Payne et al., because the valve taught by Marx et al. would have predictably provided a satisfactory means for isolating and regulating the flow of coked material from the coking chamber, given its

suitability of use in controlling the flow of particulate containing streams (see column 1, lines 21-33). Furthermore, the substitution of known equivalent structures involves only ordinary skill in the art, and when the prior art is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.

Regarding claim 49, Marx et al. teaches that said seat support system comprises dual, independent live loaded dynamic seats positioned on opposing sides of said blind (i.e., the seats may be pre-stressed on both sides of the slide plate **16**; see column 5, lines 58-60).

7. Claims 1, 7, 8, 47 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Payne et al. (US 2,403,608) in view of Riley (US 2,064,567).

Regarding claims 1, 7 and 8, Payne et al. (see FIG. 1; column 2, line 25 to column 4, line 22) discloses an apparatus comprising: (a) a coke drum (i.e., chamber **1**) having at least one port therein, said coke drum receiving material therein from a manufacturing system and process (i.e., the coking chamber **1** receives an oil stream from tubular heating furnace **2**); and (b) a de-header valve (i.e., closure **15**, comprising a sliding valve or other suitable closure; see column 2, line 47 to column 3, line 1) coupled to said port of said coke drum **1** for regulating the throughput of coked material **7**. The apparatus of Payne et al. is the same as the instantly claimed apparatus, except Payne et al. is silent as to the valve **15** having the claimed configuration.

Riley teaches a sliding blind gate-type valve **20** comprising:

(1) a main body (i.e., a casing **21**) having an orifice (i.e., flow passage **22**);

(2) a valve closure (i.e., a metal gate **26**; see page 1, column 2, lines 28-33) operably supported by said main body, said valve closure capable of being actuated to oscillate between an open position (see FIG. 1) and closed position (see FIG. 2) with respect to said orifice;

(3) means for supporting said valve closure, said means comprising a seat support system comprising portions of said main body (i.e., grooved seat **38**, with faces **39**, **41**; FIGs. 3, 4; page 1, column 2, lines 33-40) adapted to support said valve closure and provide said contact seal;

(c) a continuously maintained contact seal (i.e., against seat **39**) between said valve closure and said means for supporting said valve closure (see FIG. 4; page 2, column 2, lines 57-75); and

(d) means for actuating said valve closure **26** (i.e., via rack **32** and handwheel **36**).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the valve taught by Riley for the valve **15** in the apparatus of Payne et al., because the valve taught by Riley would have predictably provided a satisfactory means for isolating and regulating the flow of coked material from the coking chamber, given its suitability of use in controlling the flow of particulate containing streams, without clogging (page 1, column 1, lines 1-31). Furthermore, the substitution of known equivalent structures involves only ordinary skill in the art, and when the prior art is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.

Additionally, although Riley does not specifically state that the body **21** is formed from metal, such that the contact seal at **39** is metal to metal, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select a metal for forming the main body in the modified apparatus of Payne et al., because the Examiner takes Official Notice that the construction of valve bodies from metal, and the provision of metal to metal sealing in particulate containing environments, would have been considered conventional in the art.

Regarding claims 47 and 52, Payne et al. (see FIG. 1; column 2, line 25 to column 3, line 8) discloses a sliding blind gate-type deheader valve (i.e., a closure **15** for the coking drum **1**,

comprising "slide valves or other suitable closures"). Payne et al., however, is silent as to the sliding blind gate-type deheader valve **15** having the instantly claimed configuration.

Riley teaches a sliding blind gate-type valve comprising: a main body **21** comprising an orifice **22**; a valve closure comprising a blind (i.e., a metal gate **26**; see page 1, column 2, lines 28-33) capable oscillating in a linear manner (i.e., using rack **32** and handwheel **36**) to open and close said valve; means for supporting said blind, said means comprising a seat support system comprising portions of said main body (i.e., grooved seat **38**, with faces **39**, **41**; see FIGs. 3, 4; also, page 1, column 2, lines 33-40) adapted to support said valve closure and provide said contact seal; and a contact seal (i.e., against seat **39**) created between said valve closure **26** and said means for supporting a valve closure (see FIG. 4; page 2, column 2, lines 57-75).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the valve taught by Riley for the valve **15** in the apparatus of Payne et al., because the valve taught by Riley would have predictably provided a satisfactory means for isolating and regulating the flow of coked material from the coking chamber, given its suitability of use in controlling the flow of particulate containing streams, without clogging (page 1, column 1, lines 1-31). Furthermore, the substitution of known equivalent structures involves only ordinary skill in the art, and when the prior art is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.

Additionally, although Riley does not specifically state that the body **21** is formed from metal, such that the contact seal at **39** is metal to metal, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select a metal for forming the main body in the modified apparatus of Payne et al., because the Examiner takes Official Notice that

the construction of valve bodies from metal, and the provision of metal to metal sealing in particulate containing environments, would have been considered conventional in the art.

Response to Arguments

8. Applicant's arguments filed September 16, 2008 have been fully considered but they are not persuasive.

Comments regarding the rejection of claims 1, 3, 4, 7, 47, 49 and 51 under 35 U.S.C. 103(a) as being unpatentable over Payne et al. in view of Maa.

Applicant (at page 18, third paragraph, to page 19, first paragraph) argues,

> "... Maa teaches that the seal arrangement between the seat carrier and the valve body is a metallic seal where the seal ring is formed from a metallic material that is ductile and soft allowing the seal ring to be deformed so that it conforms to any irregularities in the surfaces of the seat carrier and valve body to provide a fluid tight seal. Maa's use of soft metals to replace elastomers to seal high pressure fluids would not produce a valve as claimed in the present application which is used to repeatedly de- head a coke drum.
>
> In direct contrast, Applicant claims a coke drum de-header system comprising "a continuously maintained metal contact seal between said valve closure and said means for supporting said valve closure, said contact seal shearing accumulated coke and effectively de- heading said coke drum upon actuation of said valve closure ...." As, Applicant's valve closure oscillates between an open and closed position it must scrape accumulated coke from the valve closure as it moves. This seal is very hard, and is not resilient. A resilient seal like that taught in Maa may be effective for blocking the passage of liquid, but would quickly be destroyed if forced to scrape hardened coke from a gate as the entire contents of the coke-filled drum press down on the gate. As a result, the Maa device does not make obvious the claimed invention. The two devices were created to solve different problems and they do so in very different ways."

The Examiner respectfully disagrees.

The argued seal ring of ductile and soft metallic material is element **58** in Maa (see FIG. 6 and column 3, lines 52-68). This seal ring is disposed between the seat carrier **20** and the valve body **10**, as best seen in FIG. 9.

In contrast, the Examiner stated that the "continuously maintained metal to metal contact seal" comprises the seal located at juncture **90**, located between the metal gate **26** and the hard, metal, annular seat members **78**, as best seen in FIG. 7 (see also, column 6, lines 8-42). The metal to metal contact seal is formed by the biasing of the annular seat members **78** against the surface of the gate **26**, by the resilient force of the annular members **80**. Upon oscillation of the metal gate **26**, any particulate deposits which may be present on the gate would predictably be sheared from the surface of the gate by the annular seat members **78**. When an apparatus simply arranges old elements with each performing the same function it had been known to perform and yields no more than one would expect from such an arrangement, the combination is obvious.

Comments regarding the rejection of claims 1, 3, 5, 7, 9, 10, 47 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Payne et al. in view of Usnick et al.

Applicant (at page 20, third paragraph, to page 21, first paragraph) argues,

> "... Usnick teaches that "at all times a small clearance obtains between the upper seat and the upper face of the gate." Column 3, lines 41-43. Further, Usnick teaches that "the gate- to-seat clearance is purged with gas during the periods when 100% contact is not achieved--i.e., when the gate is in transit." Column 4, lines 44-47; See column 2, lines 43-46, column 3, lines 50-51, column 4, lines 14-15 and 23-24, and column 5, lines 24-25. The clearance taught by Usnick allows for "purge gas [to be] admitted...to oppose the buildup of process solids therein." Column 2, lines 43-46.
>
> In direct contrast, Applicant claims "a continuously maintained metal contact seal

between said valve closure and said means for supporting said valve closure, said contact seal shearing accumulated coke and effectively de-heading said coke drum upon actuation of said valve closure ...." Since Usnick teaches a small clearance that is maintained at all times between the upper seat and the upper face of the gate, the configuration, as taught by Usnick, cannot shear accumulated coke and effectively de-head the coke drum upon actuation of the valve closure. Consequently, Usnick does not teach the claim limitation of shearing accumulated coke and effectively de-heading the coke drum. Further, the seat is live-loaded to maintain contact between the gate and the seat during this scraping process as the gate may deform due to the severe heat and pressure loads exerted upon it. Live-loading maintains the seal even if the gate becomes deformed. Since Usnick teaches a small clearance that is maintained at all times between the upper seat and the upper face of the gate, the configuration, as taught by Usnick, cannot maintain the seal as the gate become deformed."

The Examiner respectfully disagrees.

The claims currently recite "a continuously maintained metal to metal contact seal between said valve closure and said means for supporting said valve closure." Usnick et al. meets this claim limitation by teaching a continuously maintained metal to metal contact seal between the valve closure (i.e., gate **13)** and the means for supporting said valve closure (i.e., the lower seat **29)** since, "the lower face of the gate **13** is at all times in contact with the lower seat," (see column 3, lines 39-41), and, "One advantage of the valve is that in the fully open and closed positions there is 100% seat contact (seat **29**), minimizing buildup on the valve seal **29** of particles," (column 4, lines 33-37). Thus, in the modified apparatus of Payne, any particulate deposits which may be present on the gate would predictably be sheared from the surface of the gate by the lower seat.

It is noted that "small clearance" is only a 0.001" clearance (see column 5, lines 24-25).

When desired, the clearance may be reduced even further by "advancing the screws **51** to move the inserts **43** inward, thus displacing the seat downwardly toward the gate," (see column 3, lines 43-47; also, column 4, lines 50-52). One having ordinary skill in the art would not have expected the extremely small clearance to cause any significant deformation of the gate during operation. Furthermore, one having ordinary skill in the art would have expected the valve of Usnick et al. to perform satisfactorily in the apparatus of Payne, given its intended exposure to highly abrasive particulates and high temperatures and loads (see column 4, lines 31-68).

Comments regarding the rejection of claims 1, 3-7, 47 and 49 under 35 U.S.C. 103(a) as being unpatentable over Payne et al. in view of Marx et al.

Applicant (at page 22, second paragraph, to page 23, first paragraph) argues,

> "... Marx is a valve designed to block the flow of gases containing dust and other adulterated fluid media. Marx does not teach a valve designed for repeatedly deheading a coke drum. In particular, Marx teaches that "[t]he object underlying the present invention is to provide optimum seal conditions in so-called single plate slides ...." Column 2, lines 44-47. Accordingly, Marx discloses the use of a resilient pre-stressed seal ring, (Column 2, lines 52-54) and as cited by the pending Action, embodiments with "seal rings consist[ing] of soft resilient material." Column 3, lines 16-25. Marx's use of resilient soft materials for seal rings would not produce a valve as claimed in the present application, which is used to repeatedly de-head a coke drum.
>
> In direct contrast, Applicant claims a coke drum de-header system comprising "a continuously maintained metal contact seal between said valve closure and said means for supporting said valve closure, said contact seal shearing accumulated coke and effectively de-heading said coke drum upon actuation of said valve closure ...." As, Applicant's valve closure oscillates between an open and closed position it must scrape accumulated coke from the valve closure as it moves. This seal is very hard and is not resilient. A resilient seal like that taught in Marx may be effective for blocking the

passage of liquid, but would quickly be destroyed if forced to scrape hardened coke from a gate as the entire contents of the coke-filled drum press down on the gate. As a result, the Marx device does not make obvious the claimed invention. The two devices were created to solve different problems and they do so in very different ways."

The Examiner respectfully disagrees.

The argued "seal rings consisting of solid resilient material" appear to comprise elements **23** and **35** (see FIG. 6). In contrast, the Examiner stated that the "continuously maintained metal to metal contact seal" comprises the sealing at the surfaces **14** and **15**, defined between the sliding plate **16** and the hard armoring **25** and **36**. Upon oscillating the sliding plate **16**, any accumulated particulates which may be present on the sliding plate would be predictably sheared away by the hard armoring **25** and **36**. One having ordinary skill in the art would have expected the valve of Marx to perform satisfactorily in the apparatus of Payne, given its intended exposure to particulate containing fluid streams (see column 1, lines 25-33).

Comments regarding the rejection of claims 1, 7, 8, 47 and 52 under 35 U.S.C. 103(a) as being unpatentable over Payne et al. in view of Riley.

Applicant (at page 23, last paragraph) argues that Riley fails to teaches "a means for supporting said valve closure, wherein said means for supporting said valve closure comprises a seat support system."

The Examiner respectfully disagrees. As noted from claims 8 and 52, a seat support system may comprise a portion(s) of the main body, adapted to receive said blind and capable of forming and maintaining said contact seal. Applicant's specification further discloses that, "means for supporting a valve closure may dispense with a seating system in favor of a support

system built into main body 704, such that one or more portions or components of main body 704 are selected and prepared to support valve closure 720." (see page 49, lines 3-7).

In the instant case, the valve of Riley meets the claim limitation, since the valve comprises a means for supporting the valve closure formed from at least a portion of the main body of the valve (i.e., grooved seat **38**, with faces **39** and **41**; see FIGs. 3, 4; page 1, column 2, lines 33-40). One having ordinary skill in the art would have expected the valve of Riley to perform satisfactorily, without clogging, in the apparatus of Payne, given its intended exposure to particulate containing streams (see page 1, column 1, lines 1-31).

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

* * *

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER A. LEUNG whose telephone number is (571) 272-

1449. The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jennifer A. Leung/
Primary Examiner, Art Unit 1797